



SDMS Doc ID 2000773

The Boeing Company
Rocketdyne Propulsion & Power
6633 Canoga Avenue
P.O. Box 7922
Canoga Park, CA 91309-7922

2000773

CERTIFIED MAIL

November 15, 2000
In reply refer to 2000RC4555



Gerard Abrams
Calif. Environmental Protection Agency
Dept. of Toxic Substances Control
Region 1
Facility Permitting Branch
10151 Croydon Way, Suite 3
Sacramento CA 95827-2106

Subject: Santa Susana Field Laboratory Corrective Action Program Quarterly
Progress Reports for EPA ID Numbers CAD093365435 (Rocketdyne),
CA1800090010 (NASA) and CAD000629972 (DOE)

Dear Mr. Abrams:

The Boeing Company, Rocketdyne Propulsion and Power (Rocketdyne) has enclosed the following progress reports as required by Hazardous Waste Facility Post-Closure Permits for Rocketdyne and NASA at the Santa Susana Field Laboratory (SSFL). In addition, Rocketdyne has included a progress report for the DOE Corrective Action sites in Area IV. Rocketdyne has submitted the reports in the format as it appears in Attachment I of the Rocketdyne and NASA permits. This reporting period is from August 16, 2000 through November 15, 2000.

Should you have any comments, please do not hesitate to let me know. I can be reached at (818) 586-5695.

Sincerely,

A handwritten signature in black ink, appearing to read 'Art Lenox'.

Art Lenox
Environmental Remediation

AJL:bc
Enclosures

G. Abrams (2000RC4554)
November 15, 2000
Page 2

cc: A. Elliott/NASA (with enclosures)
D. Hambrick/Ogden (with enclosures)
R. McJunkin/DTSC (with enclosures)
C. Bonds/DTSC (with enclosures)
S. Baxter/DTSC (with enclosures)
P. Batarseh/DTSC (with enclosures)
P. Bailey/DTSC (with enclosures)
K. Baker/DTSC (with enclosures)
M. Lopez/DOE/OAK (with enclosures)
✓ T. Kelly/EPA (with enclosures)
Committee to Bridge the Gap (with enclosures)
R. Marshall/CSUN, Oviatt Library (with enclosures)
J. Weaver/Simi Valley Library (with enclosures)
J. Metzler/LA Public Library, Platt Branch (with enclosures)

(SHEA-091727)



**Santa Susana Field Laboratory
RFI and CMS Projects
Quarterly Progress Report
EPA ID No. CAD000629972 (Department of Energy)**

Rocketdyne Project Manager:	Art Lenox
Ogden Project Manager:	Dixie Hambrick
Report Period:	August 16 – November 15, 2000

1. PROGRESS MADE THIS REPORT PERIOD

Ogden continued an extended field sampling effort this period based on DTSC's comprehensive RCRA Facility Investigation (RFI) review. Soil matrix sampling was conducted this period at RFI sites and is currently in progress. Ogden collected 24 RFI samples at DOE sites during this reporting period (Table 1). DTSC was onsite during much of the field work to observe sampling protocols, select sampling locations and depths, and collect split samples. Soil matrix sample analysis is being conducted by Ceimic Laboratories, a California-certified laboratory, located in Rhode Island. To date, approximately 156 soil vapor (175 analyses) and 193 soil matrix samples (640 analyses) have been collected from DOE locations during the RFI program (Table 2).

Additional field work for the shallow groundwater investigation program began October 31, 2000 and is currently in progress. DTSC was onsite during much of the drilling to observe field protocols and select total borehole depths. Continuous core drilling was conducted at 1 proposed piezometer location near Building 487. Geophysical logging was conducted at 4 representative boreholes to aid in multilevel piezometer design. Installation of the multilevel piezometers began and will continue next period.

DTSC, Rocketdyne, and Ogden met several times this period at the SSFL to review results of the RFI sampling, discuss shallow groundwater characterization, observe field drilling and sampling activities, and collect split samples. Meetings and site visits were conducted on August 17, 18, 23 and 30; September 6, 7, 14, 15, 20, 24, 25, 26, 27, and 28; October 2, 3, 4, 6, 10, 11, 12, 17, 18, 19, 24, 25, 26, 27, 31; and November 1, 2, 3, 6, 7, 8, 9, 13, 14, and 15. These meetings are part of an ongoing, comprehensive review process with DTSC to describe site activities, soil and groundwater sampling results and field activities, and review findings at each Solid Waste Management Unit (SWMU) and Area of Concern (AOC) at the SSFL. This review includes SWMUs and AOCs identified in the 1996 RFI Work Plan and its amendments, the 1994 RCRA Facility Assessment Report, and the 1997 USEPA aerial photographic review. DOE sites reviewed to date include:

- SWMU 7.1 – Building 56 Landfill/Excavation
- SWMU 7.4 – Old Conservation Yard
- SWMU 7.5 – Building 100 Trench

RFI Quarterly Progress Report
EPA No. CAD000629972 (Area IV)
August 16 – November 15, 2000

- SWMU 7.7 – Building 20, Rockwell International Hot Lab
- Area IV AOC – Building 59, Systems for Nuclear Auxiliary Power
- Area IV AOC – Building 65, Metals Laboratory Clarifier
- Area IV AOC – Area IV Former Hazardous Materials Storage Area
- Area IV AOC – Building 009 Leach Field
- Area IV AOC – Building 010 Leach Field
- Area IV AOC – Building 021 Leach Field
- Area IV AOC – Building 030 Leach Field
- Area IV AOC – Building 064 Leach Field
- Area IV AOC – Building 093 Leach Field
- Area IV AOC – Building 353 Leach Field
- Area IV AOC – Building 363 Leach Field
- Area IV AOC – Building 373 Leach Field and Underground Tank UT-72
- Area IV AOC – Building 383 Leach Field

Work continued on the Former Sodium Disposal Facility (FSDF) Interim Measures this period. Sediment and soil removal activities were completed in the FSDF channels and former pond areas. Excavated soils from the FSDF are being stored in covered bins onsite. Confirmation sampling was completed. Geologic mapping of the bedrock was conducted. DTSC was onsite to observe confirmation sampling and select sampling locations, review geologic mapping, and observe installation of the infiltration monitoring system and backfill operations. Backfill operations are continuing.

Validation of recent soil sampling data and program quality assurance (QA) review of soil sampling data collected prior to December 1999 are ongoing. Draft QA reports and associated data from Ceimic (1997), Lockheed Analytical Services (1997), and Hydrogeospectrum/Centrum Laboratories (1997) are being compiled for DTSC review.

The draft RFI Shallow Zone Groundwater Investigation Work Plan (SZWP) was prepared by Ogden and reviewed by DTSC. The draft SZWP was approved by DTSC with specific conditions to be implemented during field work on October 27, 2000. A final SZWP is being prepared to incorporate DTSC's comments.

Work continued preparing an outline for the Chatsworth Formation Operable Unit. SRAM. Preparation of an ecological screening level protocol began.

Field implementation of the Ecological Validation Sampling and Analysis Plan (SAP) was completed this period. Ecological samples were not collected at DOE sites but the findings of this program will be used to support human health and ecological risk assessments at DOE sites. Analysis of the abiotic samples was completed and data validation begun. Analysis of the biotic media samples in progress. Ecological validation samples are included in the sampling summaries provided in Table 2.

2. SUMMARY OF FINDINGS

Preliminary results for soil and/or sediment samples collected this period from DOE sites do not indicate elevated concentrations.

3/4 SUMMARY OF PROBLEMS/ACTIONS TAKEN

Boeing is continuing to monitor the State of Arizona audit evaluation of the Columbia Analytical Services (CAS) laboratory. CAS has provided analytical support for the RFI. Boeing, Ogden, and DTSC's Hazardous Materials Laboratory met on July 21, 2000 to discuss preliminary CAS audit findings and implications for the RFI. Further discussion of potential corrective actions is pending completion of the audit.

5. PROJECT ACTIVITY NEXT PERIOD

Boeing will be involved with the following RFI activities during the next period:

- Continue comprehensive review of all SWMUs and AOCs with DTSC, including review of the USEPA Aerial Report findings, historical and preliminary RFI soil data, groundwater data, and conducting visits to inspect site conditions
- Conduct RFI site sampling
- Conduct Shallow Zone groundwater drilling and piezometer installation
- Complete data validation of ecological sample results, prepare Biotic-Sediment Accumulation Factor Report (BSAF)
- Discuss program quality assurance and laboratory performance with DTSC
- Discuss RFI report outline with DTSC
- Prepare a Area IV Landfill (SWMU 7.1) Work Plan
- Begin to compile preliminary risk and data deliverables for DTSC review
- Complete FSDF Interim Measures activities

6. PERSONNEL CHANGES

None.

7. SUMMARY OF CONTACTS

None.

8. TREATMENT SYSTEM EFFECTIVENESS

No soil remediation treatment systems are in place or operational at this time.

9. DATA REPORTS SUBMITTED

RFI Work Plan Addendum Amendment, Santa Susana Field Laboratory, Ventura County, California. *Final*. (Ogden, June 2000).

RFI Shallow Zone Groundwater Investigation Work Plan, Santa Susana Field Laboratory, Ventura County, California. *Draft*. (Ogden, October 2000).

Table 1
DOE Sampling Summary
August 16 - November 15, 2000

UNIT	Facility	MATRIX	Total Samples	Total Analyses	VOC, 8260B - vapor	VOC, 8260B	TPH, 8015/BM	SVOC, 8270CSIM	SVOC, 8270C	Metals, 6010B/7471A	Mercury, 7471A	Silver, 7761	ANIONS, 300	PH, 9045C	PCBs, 8082	Perchlorate, 300M	Dioxin, 8290	Asbestos	Arsenic	PAH, 8315A
AREA IV AOC - B457 Haz Storage	B457 Haz Storage	S	4	16	0	2	4	0	0	4	0	0	0	4	2	0	0	0	0	0
AREA IV AOC - Metals Clarifier	Metals Clarifier	S	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
SWMU 7 4	Old Conservation	S	14	81	0	0	9	14	0	13	0	1	0	13	10	0	14	7	0	0
SWMU 7 5	B100 Trench	S	3	8	0	0	1	1	0	3	0	0	0	3	0	0	0	0	0	0
TOTAL			24	108	0	2	17	15	0	20	0	1	0	20	12	0	14	7	0	0
S = Soil	V = Vapor																			
W = Water	B = Biota																			
Note - includes QA samples (water, soil, vapor), does not include samples on hold																				

Table 2
RFI Sampling Summary
May 1996 - August 2000

RFI Soil Matrix Sampling Analysis Summary																											
OWNER/OPERATOR	Total Samples	Total Analyses	VOA, 8260	TPH, 8015	VOA, 8021A	SVOA, 8270SIM	SVOA, 8270	Metals, 8010/7000	Mercury, 7471A	Silver, 7781	Hex Cr, 7196	Fluoride, 340 2	ANIONS, 300	PH, 8040/8045	PCBs, 8080/8082	PCBs, 1968	Form, ASTM D19	Perchlorate, 300M	Tributyl Sn	Dioxin, 8280	Dioxin, 1613B	Hydrazine	Ordnance, 8330	SPLP, 1312	Asbestos	LIPIDS	TOC
Rocketdyne	1356	2772	76	522	323	308	48	448	24	2	42	87	88	373	53	9	96	98	1	55	5	7	61	39	0	1	4
NASA	615	984	41	362	153	79	18	118	0	0	10	10	10	82	37	8	16	0	0	48	11	0	1	5	2	0	3
DOE	193	840	4	114	50	71	10	114	0	1	2	17	7	97	37	1	0	28	0	49	0	0	0	6	32	0	0
Total	2164	4396	121	988	526	458	76	680	24	3	54	114	105	532	127	18	111	126	1	152	16	7	62	50	34	1	7
Notes																											
Soil, water only - no vapor																											
No Task 203 samples (LUFT)																											
No Bell Canyon samples																											
No facilities support samples (NS)																											
Includes all Ogden samples at RFI sites - June 96 thru present																											
RFI Soil Vapor Sampling Analysis Summary																											
OWNER/OPERATOR	Total Active SV Samples	Total Dilutions	Total Active SV Analyses	Total Passive Soil vapor Samples																							
DOE	22	0	22	0																							
NASA	156	19	175	9																							
Rocketdyne	646	102	748	0																							
Total	824	121	945	9																							
Notes																											
Includes HGS, CAL analyses (no TEG)																											
Includes all Ogden samples at RFI sites - June 96 thru present																											
All analyses performed by Method 8260, modified for vapor																											
RFI Biologic Sampling Analysis Summary																											
OWNER/OPERATOR	Total Samples	Total Analyses	SVOC, 8270CSIM	Metals, 8010B/7471A	PCBs, 1968	Dioxin, 1613B	LIPIDS																				
DOE	0	0	0	0	0	0	0																				
NASA	25	87	12	24	13	13	25																				
Rocketdyne	20	42	8	0	12	2	20																				
Total	45	129	20	24	25	15	45																				
Notes																											
Includes all Ogden samples at RFI sites - June 96 thru present																											

**Santa Susana Field Laboratory
RFI and CMS Projects
Quarterly Progress Report
EPA ID No.CAD 093365435 (Rocketdyne)**

Rocketdyne Project Manager:	Art Lenox
Ogden Project Manager:	Dixie Hambrick
Report Period:	August 16 – November 15, 2000

1. PROGRESS MADE THIS REPORT PERIOD

Ogden continued an extended field sampling effort this period based on DTSC's comprehensive RCRA Facility Investigation (RFI) review. Soil matrix sampling was conducted this period at RFI sites and is currently in progress. Ogden collected 125 RFI samples at Rocketdyne sites during this reporting period (Table 1). DTSC was onsite during much of the field work to observe sampling protocols, select sampling locations and depths, and collect split samples. Soil matrix sample analysis is being conducted by Ceimic Laboratories, a California-certified laboratory located in Rhode Island. To date, approximately 646 soil vapor (748 analyses) and 1356 soil matrix samples (2772 analyses) have been collected from Rocketdyne locations during the RFI program (Table 2).

Additional field work for the shallow groundwater investigation program began October 31, 2000 and is currently in progress. DTSC was onsite during much of the drilling to observe field protocols and select total borehole depths. Continuous core drilling was conducted at 4 proposed multilevel piezometer locations at the CTL-III (SWMU 4.7), APTF (SWMU 4.9), LETF (SWMU 4.12), and ECL (SWMUs 6.1, 6.2, 6.4) Rocketdyne RFI sites. Geophysical logging was conducted at 4 representative boreholes to aid in multilevel piezometer design. Installation of the multilevel piezometers began and will continue next period.

DTSC, Rocketdyne, and Ogden met several times this period at the SSFL to review results of the RFI sampling, discuss shallow groundwater characterization, observe field drilling and sampling activities, and collect split samples. Meetings and site visits were conducted on August 17, 18, 23 and 30; September 6, 7, 14, 15, 20, 24, 25, 26, 27, and 28; October 2, 3, 4, 6, 10, 11, 12, 17, 18, 19, 24, 25, 26, 27, 31; and November 1, 2, 3, 6, 7, 8, 9, 13, 14, and 15. These meetings are part of an ongoing, comprehensive review process with DTSC to describe site activities, soil and groundwater sampling results and field activities, and review findings at each Solid Waste Management Unit (SWMU) and Area of Concern (AOC) at the SSFL. This review includes SWMUs and AOCs identified in the 1996 RFI Work Plan and its amendments, the 1994 RCRA Facility Assessment Report, and the 1997 USEPA aerial photographic review. Rocketdyne sites reviewed to date include:

- SWMU 4.1 - Old B-1 Area
- SWMU 4.7 – Component Test Laboratory III (CTL-III)
- SWMU 4.9 - Advance Propulsion Test Facility (APTF)
- SWMU 4.12 – Laser Engineering Test Facility (LETf) / Component Test Laboratory (CTL-I)
- SWMU 4.14 – Canyon Area
- SWMU 4.15 – Bowl Area
- SWMU 4.16 – R-1 Pond
- SWMU 4.17 – Perimeter Pond
- Area I AOC – Component Test Laboratory V (CTL-V)
- Area I AOC – Happy Valley
- SWMUs 6.1, 6.2, 6.3, AOC – Engineering Chemistry Laboratory
- SWMU 6.8 – Silvernale Reservoir
- SWMU 6.9 – Environmental Engineering Laboratory
- SWMU 7.8 – New Conservation Yard
- SWMU 7.9 – ESADA
- SWMU 7.10 – Building 005, Process Development Unit
- Area IV AOC – Pond Sediment Stockpile Area
- Area IV AOC – B008 Warehouse Leach Field
- Area IV AOC – B011 Leach Field

Validation of recent soil sampling data and program quality assurance (QA) review of soil sampling data collected prior to December 1999 are ongoing. Draft QA reports and associated data from Ceimic (1997), Lockheed Analytical Services (1997), and Hydrogeospectrum/Centrum Laboratories (1997) are being compiled for DTSC review.

Work continued this period on the final report for the Happy Valley (Area I AOC) Interim Measure.

The draft RFI Shallow Zone Groundwater Investigation Work Plan (SZWP) was prepared by Ogden and reviewed by DTSC. The draft SZWP was approved by DTSC with specific conditions to be implemented during field work on October 27, 2000. A final SZWP is being prepared to incorporate DTSC's comments.

Work continued preparing an outline for the Chatsworth Formation Operable Unit SRAM. Preparation of an ecological screening level protocol began.

Field implementation of the Ecological Validation Sampling and Analysis Plan (SAP) was completed this period. Field sampling continued at the Rocketdyne CTL-III site due to limited invertebrate recovery at a single location. Analysis of the abiotic samples was completed and data validation begun. Analysis of the biotic media samples is in progress.

A total of 20 ecological samples were collected at Rocketdyne RFI sites during this program (Table 2).

2. SUMMARY OF FINDINGS

Preliminary results for soil and/or sediment samples collected this period indicate elevated metals, dioxins, and polychlorinated biphenyls (PCBs) at the Compound A site, mercury at the SRE site, and perchlorate at the Happy Valley site.

3/4 SUMMARY OF PROBLEMS/ACTIONS TAKEN

Boeing is continuing to monitor the State of Arizona audit evaluation of the Columbia Analytical Services (CAS) laboratory. CAS has provided analytical support for the RFI. Boeing, Ogden, and DTSC's Hazardous Materials Laboratory met on July 21, 2000 to discuss preliminary CAS audit findings and implications for the RFI. Further discussion of potential corrective actions is pending completion of the audit.

5. PROJECT ACTIVITY NEXT PERIOD

Boeing will be involved with the following RFI activities during the next period:

- Continue comprehensive review of all SWMUs and AOCs with DTSC, including review of the USEPA Aerial Report findings, historical and preliminary RFI soil data, groundwater data, and conducting visits to inspect site conditions
- Conduct RFI site sampling
- Conduct Shallow Zone groundwater drilling and piezometer installation
- Complete data validation of ecological sample results, prepare Biotic-Sediment Accumulation Factor Report (BSAF)
- Discuss program quality assurance and laboratory performance with DTSC
- Discuss RFI report outline with DTSC
- Revise the Area I Landfill (SWMU 4.2) Work Plan
- Begin to compile preliminary risk and data deliverables for DTSC review

6. PERSONNEL CHANGES

None.

RFI Quarterly Progress Report
EPA No. CAD093365435 (Areas I, III and IV)
August 16 – November 15, 2000

7. SUMMARY OF CONTACTS

None.

8. TREATMENT SYSTEM EFFECTIVENESS

No soil remediation treatment systems are in place or operational at this time.

9. DATA REPORTS SUBMITTED

RFI Work Plan Addendum Amendment, Santa Susana Field Laboratory, Ventura County, California. *Final*. (Ogden, June 2000).

RFI Shallow Zone Groundwater Investigation Work Plan, Santa Susana Field Laboratory, Ventura County, California. *Draft*. (Ogden, October 2000).

Table 1
Rocketdyne Sampling Summary
August 16 - November 15, 2000

UNIT	Facility	MATRIX	Total Samples	Total Analyses	VOC, 8260B - vapor	VOC, 8260B	TPH, 8015/BM	SVOC, 8270CSIM	SVOC, 8270C	Metals, 6010B/7471A	Mercury, 7471A	Silver, 7761	ANIONS, 300	PH, 9045C	PCBs, 8082	Perchlorate, 300M	Dioxin, 8290	Asbestos	Arsenic	PAH, 8315A
AREA I AOC - Happy Valley	Happy Valley	S	28	53	0	0	0	0	0	20	0	0	0	20	0	12	0	0	1	0
AREA I AOC - Happy Valley	Happy Valley	W	25	25	0	0	0	0	0	0	0	0	0	0	0	25	0	0	0	0
AREA III AOC - STP	STP	S	1	3	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0
AREA IV AOC - SRE	SRE	S	21	36	0	0	7	5	0	6	12	0	0	5	1	0	0	0	0	0
AREA IV Pond Dredge	Pnd Dredge	S	4	16	0	0	4	4	0	4	0	0	0	4	0	0	0	0	0	0
SWMU 4 1	B-1 Area	S	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
SWMU 4 7	CTL-III	S	2	3	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0
SWMU 4 12	LET/CTL-I	S	4	9	0	0	1	0	0	2	0	0	1	2	0	0	3	0	0	0
SWMU 4 14	Canyon Area	S	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SWMU 4 15/AOC	Bowl Area	S	6	14	0	0	2	3	0	3	0	1	0	3	0	0	2	0	0	0
SWMU 6 1/6 3/AOC	ECL	S	6	23	0	3	3	1	4	2	0	0	3	5	1	0	0	0	0	1
SWMU 6 4	Compound A	S	16	60	0	1	10	10	0	11	0	0	0	10	9	0	9	0	0	0
SWMU 7 9	ESADA	S	8	8	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0
TOTAL			125	254	0	5	32	24	4	49	20	1	4	50	12	37	14	0	1	1
S = Soil	V = Vapor																			
W = Water	B = Biota																			
Note - includes QA samples (water, soil, vapor), does not include samples on hold																				

Table 2
RFI Sampling Summary
May 1998 - August 2000

RFI Soil Matrix Sampling Analysis Summary																											
OWNER/OPERATOR	Total Samples	Total Analyses	VOA, 8260	TPH, 8016	VOA, 8021A	SVOA, 8270SIM	SVOA, 8270	Metals, 6010/7000	Mercury, 7471A	Silver, 7761	Hex Cr, 7196	Fluoride, 340 2	ANIONS, 300	PH, 9040/9045	PCBs, 8080/8082	PCBs, 1668	Form, ASTM D19	Perchlorate, 300M	Tributyl Sn	Dioxin, 8290	Dioxin, 1613B	Hydrazine	Ordinance, 8330	SPLP, 1312	Asbestos	LIPIDS	TOC
Rocketdyne	1356	2772	76	522	323	309	48	448	24	2	42	87	88	373	53	9	95	98	1	55	5	7	61	39	0	1	4
NASA	615	984	41	352	153	79	18	118	0	0	10	10	10	62	37	8	16	0	0	48	11	0	1	5	2	0	3
DOE	193	840	4	114	50	71	10	114	0	1	2	17	7	97	37	1	0	28	0	49	0	0	0	6	32	0	0
Total	2164	4396	121	988	526	459	76	680	24	3	54	114	105	532	127	18	111	126	1	152	16	7	62	50	34	1	7
Notes																											
Soil, water only - no vapor		No Eco Samples																									
No Task 203 samples (LUFT)		No background samples																									
No Bell Canyon samples		No samples on hold																									
No facilities support samples (NS)																											
Includes all Ogden samples at RFI sites - June 96 thru present																											
RFI Soil Vapor Sampling Analysis Summary																											
OWNER/OPERATOR	Total Active SV Samples	Total Dilutions	Total Active SV Analyses	Total Passive Soil vapor Samples:																							
DOE	22	0	22	0																							
NASA	156	19	175	9																							
Rocketdyne	646	102	748	0																							
Total	824	121	945	9																							
Notes																											
Includes HGS, CAL analyses (no TEG)				Includes Gore analyses, no dilutions required																							
Includes all Ogden samples at RFI sites - June 96 thru present																											
All analyses performed by Method 8260, modified for vapor																											
RFI Biode Sampling Analysis Summary																											
OWNER/OPERATOR	Total Samples	Total Analyses	SVOA, 8270CSIM	Metals, 6010B/7471A	PCBs, 1668	Dioxin, 1613B	LIPIDS																				
DOE	0	0	0	0	0	0	0																				
NASA	25	87	12	24	13	13	25																				
Rocketdyne	20	42	8	0	12	2	20																				
Total	45	129	20	24	25	15	45																				
Notes																											
Includes all Ogden samples at RFI sites - June 96 thru present																											

**Santa Susana Field Laboratory
RFI and CMS Projects
Quarterly Progress Report
EPA ID No. CA1800090010 (NASA)**

Rocketdyne Project Manager:	Art Lenox
Ogden Project Manager:	Dixie Hambrick
Report Period:	August 16 – November 15, 2000

1. PROGRESS MADE THIS REPORT PERIOD

Ogden continued an extended field sampling effort this period based on DTSC's comprehensive RCRA Facility Investigation (RFI) review. Soil matrix sampling was conducted this period at RFI sites and is currently in progress. Ogden collected 29 RFI samples at NASA sites during this reporting period (Table 1). DTSC was onsite during much of the field work to observe sampling protocols, select sampling locations and depths, and collect split samples. Soil matrix sample analysis is being conducted by Ceimic Laboratories, a California-certified laboratory, located in Rhode Island. To date, approximately 156 soil vapor (175 analyses) and 615 soil matrix samples (984 analyses) have been collected from NASA locations during the RFI program (Table 2).

Additional field work for the shallow groundwater investigation program began October 31, 2000 and is currently in progress. DTSC was onsite during much of the drilling to observe field protocols and select total borehole depths. Continuous core drilling was conducted at 3 proposed multilevel piezometer locations at the B515 STP [RD-9 area] (Area II AOC) and the Delta (SWMU 5.23) NASA RFI sites. Geophysical logging was conducted at 4 representative boreholes to aid in multilevel piezometer design. Installation of the multilevel piezometers began and will continue next period.

DTSC, Rocketdyne, and Ogden met several times this period at the SSFL to review results of the RFI sampling, discuss shallow groundwater characterization, observe field drilling and sampling activities, and collect split samples. Meetings and site visits were conducted on August 17, 18, 23 and 30; September 6, 7, 14, 15, 20, 24, 25, 26, 27, and 28; October 2, 3, 4, 6, 10, 11, 12, 17, 18, 19, 24, 25, 26, 27, 31; and November 1, 2, 3, 6, 7, 8, 9, 13, 14, and 15. These meetings are part of an ongoing, comprehensive review process with DTSC to describe site activities, soil and groundwater sampling results and field activities, and review findings at each Solid Waste Management Unit (SWMU) and Area of Concern (AOC) at the SSFL. This review includes SWMUs and AOCs identified in the 1996 RFI Work Plan and its amendments, the 1994 RCRA Facility Assessment Report, and the 1997 USEPA aerial photographic review. NASA sites reviewed to date include:

- SWMUs 4.5 and 4.6 – LOX Area
- SWMU 5.2 – Expendable Launch Vehicle (ELV) Area

- SWMU 5.5 and AOC – Building 204 Area
- SWMU 5.6 – Area II Former Ash Pile
- SWMU 5.7 – Hazardous Waste Storage Area Coolant Tank
- SWMUs 5.9, 5.10, 5.11 – Alfa Area
- SWMU 5.12 – Alfa/Bravo Skim Pond
- SWMUs 5.13, 5.14, 5.15 – Bravo Area
- SWMUs 5.18, 5.19 – Coca Area
- SWMUs 5.20, 5.21, 5.22 – Propellant Load Facility (PLF) Area
- SWMUs 5.23, 5.24, 5.25 – Delta Area
- SWMU 5.26 – R2A/R2B Ponds
- Area II AOC – Coca/Delta Fuel Farm
- Area II AOC – Alfa/Bravo Fuel Farm
- Area II AOC – Storable Propellant Area
- Area II AOC – Building 515 Sewage Treatment Plant Clarifier and Leach Field Area

Validation of recent soil sampling data and program quality assurance (QA) review of soil sampling data collected prior to December 1999 are ongoing. Draft QA reports and associated data from Ceimic (1997), Lockheed Analytical Services (1997), and Hydrogeospectrum/Centrum Laboratories (1997) are being compiled for DTSC review.

The draft RFI Shallow Zone Groundwater Investigation Work Plan (SZWP) was prepared by Ogden and reviewed by DTSC. The draft SZWP was approved by DTSC with specific conditions to be implemented during field work on October 27, 2000. A final SZWP is being prepared to incorporate DTSC's comments.

Work continued preparing an outline for the Chatsworth Formation Operable Unit SRAM. Preparation of an ecological screening level protocol began.

Field implementation of the Ecological Validation Sampling and Analysis Plan (SAP) was completed this period. Analysis of the abiotic samples was completed and data validation begun. Analysis of the biotic media samples in progress. A total of 25 samples were collected at NASA RFI sites during this program (Table 2).

2. SUMMARY OF FINDINGS

Preliminary results for soil and/or sediment samples collected this period indicate slightly elevated dioxins at the Area II Ash Pile site (SWMU 5.6).

3/4 SUMMARY OF PROBLEMS/ACTIONS TAKEN

Boeing is continuing to monitor the State of Arizona audit evaluation of the Columbia Analytical Services (CAS) laboratory. CAS has provided analytical support for the RFI.

Boeing, Ogden, and DTSC's Hazardous Materials Laboratory met on July 21, 2000 to discuss preliminary CAS audit findings and implications for the RFI. Further discussion of potential corrective actions is pending completion of the audit.

5. PROJECT ACTIVITY NEXT PERIOD

Boeing will be involved with the following RFI activities during the next period:

- Continue comprehensive review of all SWMUs and AOCs with DTSC, including review of the USEPA Aerial Report findings, historical and preliminary RFI soil data, groundwater data, and conducting visits to inspect site conditions
- Conduct RFI site sampling
- Conduct Shallow Zone groundwater drilling and piezometer installation
- Complete data validation of ecological sample results, prepare Biotic-Sediment Accumulation Factor Report (BSAF)
- Discuss program quality assurance and laboratory performance with DTSC
- Discuss RFI report outline with DTSC
- Revise the Area II Landfill (SWMU 5.1) Work Plan
- Begin to compile preliminary risk and data deliverables for DTSC review

6. PERSONNEL CHANGES

None.

7. SUMMARY OF CONTACTS

None.

8. TREATMENT SYSTEM EFFECTIVENESS

No soil remediation treatment systems are in place or operational at this time.

9. DATA REPORTS SUBMITTED

RFI Work Plan Addendum Amendment, Santa Susana Field Laboratory, Ventura County, California. *Final*. (Ogden, June 2000).

RFI Shallow Zone Groundwater Investigation Work Plan, Santa Susana Field Laboratory, Ventura County, California. *Draft*. (Ogden, October 2000).

Table 1
NASA Sampling Summary
August 16 - November 15, 2000

UNIT	Facility	MATRIX	Total Samples	Total Analyses	VOC, 8260B - vapor	VOC, 8260B	TPH, 8015/BM	SVOC, 8270CSIM	SVOC, 8270C	Metals, 6010B/7471A	Mercury, 7471A	Silver, 7761	ANIONS, 300	PH, 9045C	PCBs, 8082	Perchlorate, 300M	Dioxin, 8290	Asbestos	Arsenic	PAH, 8315A
AREA II AOC - Bldg 515 STP	Bldg 515 STP	S	5	20	0	0	5	5	0	5	0	0	0	5	0	0	0	0	0	0
SWMU 5.5/AOC	B204 USTs	S	2	6	0	0	0	0	0	2	0	0	0	2	0	0	0	2	0	0
SWMU 5.6	Ash Pile	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
SWMU 5.13/14/15	Bravo Area	S	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0
SWMU 5.18/5.19	Coca Area	S	13	17	0	13	4	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL			29	52	0	13	17	5	0	7	0	0	0	7	0	0	1	2	0	0
S = Soil	V = Vapor																			
W = Water	B = Biota																			
Note - includes QA samples (water, soil, vapor); does not include samples on hold.																				

Table 2
RFI Sampling Summary
May 1996 - August 2000

RFI Soil Matrix Sampling Analysis Summary																											
OWNER/OPERATOR	Total Samples	Total Analyses	VOCs, 8260	TPH, 8015	VOCs, 8021A	SVOA, 8270SIM	SVOA, 8270	Metals, 6010/7000	Mercury, 7471A	Silver, 7761	Hex Cr, 7198	Fluoride, 340 2	ANIONS, 300	PH, 9040/9045	PCBs, 8080/8082	PCBs, 1668	Form, ASTM D19	Perchlorate, 300M	Tributyl Sn	Dioxin, 8290	Dioxin, 1613B	Hydrazine	Ordnance, 8330	SPLP, 1312	Asbestos	LIPIDS	TOC
Rocketdyne	1356	2772	76	522	323	309	48	448	24	2	42	87	88	373	53	9	95	98	1	55	5	7	61	39	0	1	4
NASA	615	984	41	352	153	79	18	118	0	0	10	10	10	62	37	8	16	0	0	48	11	0	1	5	2	0	3
DOE	193	640	4	114	50	71	10	114	0	1	2	17	7	97	37	1	0	28	0	49	0	0	0	6	32	0	0
Total	2164	4396	121	988	526	459	76	680	24	3	54	114	105	532	127	18	111	126	1	152	16	7	62	50	34	1	7
Notes																											
Soil, water only - no vapor																											
No Task 203 samples (LUFT)																											
No Bell Canyon samples																											
No facilities support samples (NS)																											
Includes all Ogden samples at RFI sites - June 96 thru present																											
RFI Soil Vapor Sampling Analysis Summary																											
OWNER/OPERATOR	Total Active SV Samples	Total Dilutions	Total Active SV Analyses	Total Passive Soil vapor Samples																							
DOE	22	0	22	0																							
NASA	156	19	175	9																							
Rocketdyne	646	102	748	0																							
	824	121	945	9																							
Notes																											
Includes HGS, CAL analyses (no TEG)																											
Includes all Ogden samples at RFI sites - June 96 thru present																											
All analyses performed by Method 8260, modified for vapor																											
RFI Biologic Sampling Analysis Summary																											
OWNER/OPERATOR	Total Samples	Total Analyses	SVOA, 8270CSIM	Metals, 6010B/7471A	PCBs, 1668	Dioxin, 1613B	LIPIDS																				
DOE	0	0	0	0	0	0	0																				
NASA	25	87	12	24	13	13	25																				
Rocketdyne	20	42	8	0	12	2	20																				
Total	45	129	20	24	25	15	45																				
Notes																											
Includes all Ogden samples at RFI sites - June 96 thru present																											